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THE JOURNAL OF PHILOSOPHY

ROMANTICISM VS. THE WORSHIP OF FACT

RECENTLY a noted writer reiterated the ancient but fallacious charge of subjectivism against the romantic attitude. The dispute normally arises in the following way: The romantic endeavors to escape from the world of the actual into that of fancy, or more specifically into the realm of esthetic and speculative imagination. The critic, however, interprets this attitude as an unwillingness to submit to outward fact and accuses the romantic of a desire to withdraw into a world of his own creation.

The indictment rests on a confusion between the actual and the real. The critic begins with a fallacious identification of the real with the actual and then goes on to describe any breaking loose from the latter into the world of imagination as a detachment from the objective and a retreat into the subjective. But it is only a vulgar preference or extreme *naïveté* that could lead one to limit reality to the actual; over and above the actual, there is the field of subsistence, of ideal entities, of forms, of possibilities; and the romantic imagination is not vain dreaming but an extension of the area of knowledge itself beyond perception into the realm of these ideal essences.

It was the distinctive merit of Leibniz to have pointed out with clearness that besides the actual there is also the world of possibilities, inhabited by entities that are *real* though not existent. Leibniz, in commenting upon the common-sense view that "heavy bodies really exist and act, but possibilities or essences anterior to existence or apart from it, are imaginary or fictitious" urges that "neither these essences nor what are called eternal truths regarding these essences are fictitious but that they exist in a certain region (if I may so call it) of ideas, that is to say, in God Himself."[1]

Now, the romantic escape from the actual is but a transfer of residence into the realm of possibilities. Indeed, romanticism is to art what pure logic is to thought; both are other-worldly, and differ only in the fact that, whereas the former is seeking beauty, the latter is in quest of intellectual values in the universe of all possible worlds. Hence, far from being subjectivistic, romanticism is a projection of the self into the objective; far from being a flight

[1] Quoted from the *Essay on the Ultimate Origination of Things.*

into the void of the unreal, remanticism is a sharing, along with God, in the contemplation of the vast landscape of all possible worlds.

It is the "realist" himself that must be charged with subjectivism. For, by insisting that attention be confined to the actual, the realist manifests a limitation of interest to himself and to his immediate surroundings. After all, the world of actuality has no intrinsic advantages over the world of possibility; we come to like the former quite unreflectively because we find ourselves in it, as we like our brothers and sisters, or our country. To be transported into the possible is to be taken out of ourselves and our own, and the realist, refusing as he does to leave the borders of his spiritual birthplace, betrays an intellectual provincialism; his mind remains untravelled. But the romantic temperament is adventuresome and free, launching bold expeditions into unexplored regions of possibility, all the while going about, not in the fashion of a Baedecker tourist, but immersing itself in the new regions and investigating them with an open mind, unhampered by the prejudices of the little bit of actuality into which it has been born.

The realist suffers from inertia of mind; he is too indolent to move about. But romanticism is the mind become active and restless, for fancy is like blazing coal in the engine of the soul. Thus, the realist's world is poor and narrow, devoid of the wealth and variety of the romantic scenery. And if the poet's dictum that "he does not England know who only England knows" be true, then, by analogy, the realist knows not even his corner of actuality well, because he has not contemplated it in the light of other possibilities.

The fundamental, though tacit, assumption of the defenders of realism is that actuality possesses worth as such and that romanticism is at a great disadvantage for its neglect of the actual. Anselm, even Leibniz himself, maintained that actuality is a requisite of perfection and the transition from possibility to realization an absolute gain. Now, for one thing, Kant has refuted Anselm by showing that actuality adds nothing to possibility. In fact, there is something essentially accidental about actuality. Abstractly, any causal law is as possible as any other; yet one is realized and the others are not. There is no reason why dead people should not talk, but they don't; there is no reason why the sun should rise; it simply does rise and keeps on rising, inexplicably, every morning. Existence is therefore lacking the dignity bestowed by necessity.

Moreover, do we not all admit that distance lends enchantment—

distance in time, distance from the present, in other words, remoteness from the actual? The past is beautiful because it represents that portion of reality which has gone out of time into eternity. That spatio-temporal reality is at best a poor affair, is evidenced by the fact that reason in the guise of science is engaged in a continued effort to patch things up, to fill up vast gaps by correspondingly vast assumptions, introducing the hypothesis of uniformity to explain away the apparent diversity, sewing up the ragged edges of events with the thread of causal law, trying to compensate for the coarse exterior of the stream of happenings by constructing behind apearances a conceptual world of points and atoms, so much so that virtually the larger part of what common-sense and science call reality is nothing but intellectual construction.

But may not actuality claim a certain "robustness" and "concreteness" denied to the world of pure ideas? Even that is doubtful. The robustness of the actual is of a hectic hue and deceptive like the color on a feverish face or the energy exhibited by one who is intoxicated. For the more penetrating and intense the intellectual vision, the more does the actual fade into a shadow, as Plato came to see, until, in the mystical experience, it dissolves into an illusion. The claims of fact upon our attention are not of intrinsic merit but of dominion; we must take notice of the immediate situation because, if we do not, we suffer. And yet it is into this sea of fleeting, chaotic existence that Bergsonian mysticism invites us to plunge—stripped bare of all clothing of intellectual elaboration—to be drawn below by fickle currents, away from the fresh and free atmosphere of creative thought.

In sum, existence is an evil and creation the original sin. Leibniz himself recognized that a possibility can never be realized as such because the receptivity of the world is limited. To realize is to weaken, to dilute the ideal. That, as J. S. Mill complained, a heretic becomes a tyrant as soon as he enters into power—in other words, that one ceases to care for freedom as soon as one has attained it—is a vivid instance of the vicious effect of attempting to transfer the ideal from the realm of possibility to that of fact. The question instinctively arises, why there should be a world of existence at all. If we look at the process as a passage from the possible to the actual through the mechanism of creation, then the problem before us is indeed insoluble. But the situation is simplified if we take existence as granted and regard the universal process as one of a gradual liberation of the possible from the existent. To this view, the law of the dissipation of energy lends strong support. Obviously, matter obstinately resists extinction, yet the availability

of energy for work constantly diminishes; in other words, *its ability to embody new forms and ideas is gradually being reduced.* Spurts of new life and the formation of new combinations indicate desperate efforts on the part of the actual to extend its hold upon the ideal; but with the eventual cessation of work, foreshadowed by the so-called law of degeneration, the dominion of matter over form will come to an end, and the realm of possibilities will no longer suffer encroachment from the actual.

In line with this tendency are all the noblest aspirations of man as embodied in art, in religion, and in philosophy. In these, the soul proclaims itself an exile in the actual and voices a profound yearning to escape from the immediate in time and in space. Romanticism, then, as we have defined it, is not by any means an isolated movement. Philosophy and poetry constitute preëminent instances of the soul liberating itself from fact under the stimulus, in the one case, of intellectual and in the other of esthetic imagination. Even science, as we noted above, is not a mirror of fact, but an intellectual embroidery upon it. And as philosophy expresses the romanticism of the intellect, so does the attitude of faith represent the romanticism of the will. For what is this undying optimism in the face of failure, this pathetic devotion to hopeless causes, this faith in the eventual doing of justice when injustice rules unchecked, this belief in human beings and confidence in their unlimited progress, but a vast construction of the moral imagination upon the very facts of failure?

In the long run, life can not be left wholly out of account; after all, life is one of the many dreams and the actual world one of the infinite possible worlds. We should therefore school our minds to conceive the actual *sub specie possibilitatis*—to use it indeed as a stepping-stone into the domain of possibility. For the enlightened soul inhabits a world whose area embraces the actual but extends far beyond it into the subsistent, and its home is the entire universe of being.

RAPHAEL DEMOS.

CAMBRIDGE, MASS.

RELATIVITY, OLD AND NEW[1]

IN the presentation of a scientific theory for philosophical consideration, it is of primary importance that the fundamental bases of the theory be brought prominently, and indeed unequivo-

[1] Certain objections to J. E. Turner's article "Some Philosophic Aspects of Scientific Relativity," this JOURNAL, Vol. XVIII, No. 8.

cally to the fore, and that the points at which it departs in its vital essentials from previously held theories relating to the same phenomena stand forth in unmistakable relief. From this standpoint I can not but take exception to Mr. Turner's presentation, as well as to some of his conclusions.

In his second paragraph Mr. Turner wisely says " . . . the term 'relativity' itself accounts for much of the prevailing confusion," and further, "Even its widest later applications are concerned only with the relative velocities of systems and observers, and with the mathematical and other scientific (but not philosophic) implications of these. . . . The theory has . . . no bearing on the subjectivity of Time and Space." The first quotation would suggest that an explanation of the term "relativity" in its application under discussion is desirable, and this I shall endeavor to supply. The second is true only if "philosophic" is used in a very narrow sense. Philosophy, certainly if it "holds an inalienable lien on the whole of experience" is concerned with other aspects of time and space than their subjectivity and objectivity. While relativity may throw no additional light on the question of the degree of objectivity possessed by the metrical time and space which are mathematically treated, it introduces changes in our ideas as to the relations between them, to motion, and to things in time and space, which, even if not "revolutionary," are profoundly different from the classical conceptions. Revolutionary is an hyperbolical word, but the theory of the relations between space and time required by modern physics must command philosophical attention, though it be characterized by a more modest adjective.

The idea of "relativity" in physics is by no means modern, but has been assumed in Newtonian mechanics almost axiomatically in the case of uniform motion. This "Newtonian Relativity" is the relativity of the "man in the street," and in everyday language is nothing more than the statement that if a person walks four miles per hour from the rear platform to the front platform, of a trolley car running twenty miles an hour, he will cover ground at the rate of twenty-four miles an hour; and further, if a boy standing on the track in front of the car throws a stone at a speed of one hundred miles an hour, it will hit the passenger at the speed of one hundred and twenty-four miles an hour. This seems axiomatic to the non-scientifically inclined, and in the language of physics defines space as a region in which Euclidean geometry is valid. In such a space figures may be moved about and rotated without change of size or shape, either while moving, or after having changed their relative

positions; velocities are directly additive, and by combining a sufficient number of finite velocities, we may *exceed any specified velocity*. If we have a record of the motions of our passenger in the trolley car relative to the car (as for instance the spots that he tapped on the floor with his cane, which he is in the habit of swinging every second as he walks) we can obtain a record of his positions relative to the track by adding to the distance of each spot from the rear platform, the quantity obtained by multiplying the time of that spot by the velocity of the car, and laying off the total distance so computed from the position of the rear platform when the car started. If we denote the distance from the rear platform of the car by x' and that from the station by x we find that $x' = x - vt$ (1) where v is the velocity of the car. The position of the passenger between the rails, and the height above the rails are not affected by the motion of the car, and there is no discrepancy between the passenger's watch and the clock in the station, provided that they agreed at the start. These facts are described by the equations $y' = y$, (2), $z' = z$ (3), and $t' = t$ (4). The important features of this transformation, for our present discussion are:

(*a*) Distances are unaltered.
(*b*) Directions are unaltered.
(*c*) Velocities are directly additive.
(*d*) *The time is entirely independent of the space transformation.*
(*e*) No forces are introduced in one system that were not present in the other.

It seems inherent to our sense of physical things that they should be describable from two systems of reference, *i.e.*, from the car and from the ground, in such a way that certain properties which we feel to be fundamental should remain unaltered in the two descriptions. In the transformation from one system to another which we have just described, *i.e.*, one in which the two systems of reference have a uniform velocity relative to each other, these properties are: length, direction, mass and force. It is important to notice that no velocity is invariant. The velocity with which the passanger is covering the ground is the sum of the speed with which he walks in the car, and the speed of the car.

The above discussion covers "Newtonian relativity" in its essentials. It is something so familiar that we almost instinctively feel it, and the quantities that it leaves invariant we have hitherto regarded as fundamental in physics, and, in fact, as "objective" in the same sense that "things" and any relations between things are objective. So deeply was the idea of the invariance of these quantities embedded in our physical concepts that when new forces

were introduced in cases in which the motion was not uniform, we did not regard it as a violation of the principle, and we called such forces "inertia forces," although the question, "Uniform relatively to what?" was lightly avoided. But while the above discussion is in accord with everyday thought, certain physical phenomena are not in accord with it.

Within the last hundred years, the results of various experiments have forced us from this delightfully simple and "self-evident" relativity. These experiments are of two general types. One type shows that whether we are moving toward, or receding from a ray of light, *it approaches us with the same relative velocity.* From the point of view of classical mechanics this conclusion is little short of astounding, but it is arrived at by direct physical measurement, and must be accepted, at least pending the results of further experimental investigation. It also appears that this is not due to the medium which transmits light (if such there be) being carried along with us as we move.

The other type of experiment shows that the dimensions of particles moving with velocities approaching that of light, vary in a certain way according to the velocity of the system from which they are measured. An electron suffers a contraction in the direction of its motion relative to the system of measurement, and its mass increases as a certain function of its velocity. Computation also shows that, accompanying these transformations, there must be an increase in the units of time on the moving electron, relative to the units on the observing system. These phenomena were known as "The Lorentz-FitzGerald Contraction," and it was first shown by Einstein that they depend not on any peculiarity of electrons, but on the very act of measuring by a means of communication, between object and observer, the velocity of which is invariant.

The revision of the Newtonian principle of relativity to account for these experimentally observed facts has been effected by Einstein in his "Special Theory of Relativity." He has shown that all these phenomena are capable of explanation if we drop the assumption of the invariance of our supposed fundamental physical quantities, and proceed on the assumption of the invariance of the velocity of light. When we do this the stability of our old constants flies to the winds. The length of our trolley car becomes shorter when it is in motion relatively to us than when it is stationary, and the passenger's embonpoint suffers even more so, provided he is walking towards the front of the car; also his velocity over the ground is a little less than the sum of his walking speed and

the speed of the car. The equations of this transformation which take the place of (1) and (4) in the Newtonian theory are

$$x' = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}\left(x - vt\right) \tag{5}$$

and

$$t' = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}\left(t - \frac{v}{c^2}x\right), \tag{6}.$$

In this transformation none of the properties considered under the former transformation holds, with the exception of (*e*). The point that might be characterized as "revolutionary" is that the space and time transformations are not independent. Now it is true that in previous physical theory four independent coördinates have been used to describe an event, three to establish a position in space, and one to signify the time of that position; but the distinction between space and time has always been definite. The characteristics of space remained invariant in time, and those of time were invariant in space. Under such conditions it was of no utility to complicate the discussion by saying that an event was specified by four coördinates in a four-dimensional space-time, although this conception could have been used by any one so inclined. The sense in which this conception is used in the theory of relativity is, however, far more fundamental.

Consider, for instance, our observation of a cube. Disregarding the effect of binocular vision, a cube may appear to us as a variety of plane figures, according to our line of sight. From one position it appears as a square, from another as an hexagon with three lines from alternate vertices to the center. It may also appear in irregular shapes, with varying lengths of edges and different angles. We further observe that these shapes change as we change our position relative to the object under observation. Now we might formulate a set of laws which would tell us how this plane figure alters its size and shape as we observe it from different distances and directions, but they would appear rather complicated and arbitrary. Equations (5) and (6) are laws so formulated. However, with a certain amount of mathematical insight, we might postulate a three-dimensional object which is *invariant* to the transformations caused by observing it from different directions, namely the cube, and say that the variety of plane figures we see are views of this invariant object from different directions. Equations (5) and (6) say just this, except that the four-dimen-

sional space-time in which we view the phenomena from different angles, depending on our velocity relative to the phenomena, is not Euclidean. It is homaloidal, and may be made to correspond to a Euclidean space of four dimensions by substituting for time a variable proportional to it, but whose square is negative. In mathematical analysis such a variable is technically termed "imaginary," and the use of "imaginary" in this sense is responsible for Mr. Turner's statement that " . . . the 'four-dimensional world of Minkowski' is not a universe which is more truly real than the spaciotemporal world of perceptual experience." The use of the "imaginary" in this connection is entirely unnecessary, and is indeed only a mathematical artifice to simplify certain aspects of the theory, just as certain vectors are represented by complex numbers which have an "imaginary" part, in computations involving alternating currents. We may say that Minkowski's world is Euclidean and four-dimensional, but that our sense of perception of the fourth dimension as time can not perceive it in kind with the other three dimensions, but must perceive a different function of it, *i.e.*, $-\sqrt{-1}\,u$, where "u" is in kind with the three spacial dimensions, or we may say that we perceive all four dimensions as similar in kind, and that Minkowski's world is non-Euclidean. In either case the percept-concept is non-Euclidean, and the argument has the metaphysical possibilities of the question as to whether we are looking up if we are standing on our heads and looking down. The four-dimensional world is more real than the spatial world of three dimensions in exactly the same sense that the cube is more real than the multitude of variously shaped plane figures we observe when looking at it from different positions. It is the invariant that we are compelled to regard as fundamental in seeking that interpretation of results which involves the least number of arbitrary assumptions. In the same sense that it would be exceedingly arbitrary to regard the plane figure which changes size and shape as we change our position, as the fundamental entity, it is arbitrary to regard the figures of spatial points which change shape according to equation (5) as fundamental, when the changes may be perfectly interpreted as a revolution of an invariant in four-dimensional space.

We must, therefore, take direct issue with Mr. Turner's statement that "These methods and principles, however, do not affect in the remotest degree the philosophic problems of objective reality, the pros and cons of which remain what they were before. . . ." Both scientists and philosophers are in danger of falling into a pitfall of verbal quibbles when they attack the question of what

is objective. If by "objective" is meant an unknowable reality underlying phenomena, it is hard to see how any physical facts could throw light on the question of such an objective reality. And if by "objective reality" is meant the ordinary perceptual experience of common-sense objects, that is only altered by the Lorentz-FitzGerald contraction, and this would seem to be Mr. Turner's position. But if by "objective" is meant either a rationalized experience, or a world independent of the awareness of a percipient (in the sense in which the neo-realists use independent), such an objective reality is profoundly changed by the "Special Theory of Relativity"; for it transfers the question from the three-dimensional world of spacial points to the four-dimensional world of space-time. In our efforts to narrow the results of physical perception to what appears most likely to be connected with an objective reality, we postulate that it must depend as little as possible on the personality of the observer and the point of observation. This certainly gives the invariant world of four dimensions a stronger position than one composed of three dimensions that vary as we observe them under different conditions; and it would seem that the position hitherto occupied by the three-dimensional cosmos must now be taken by Minkowski's "world" of four dimensions.

Before leaving this part of the discussion I can not refrain from voicing an objection to Mr. Turner's exposition of the transformations in terms of sound. The transformations of the "Special Theory of Relativity" owe their characteristic significance to the invariance of the velocity of light relative to any observer. Mr. Turner's congenitally blind observers could ascertain their velocities relative to the medium which transmits sound, without difficulty, and could also detect the relative velocity of another source of sound. Further, if we grant them a sufficient degree of hyperesthesia, they could detect the Lorentz-FitzGerald contraction, but of course they would not interpret the constant "c" as the velocity of light. Indeed it is not necessary to the special theory of relativity that the velocity of light should be exactly the fundamental invariant velocity "c." The point is that such a maximum exists, and the velocity of light is so close to it that we have as yet detected no difference. For the blind observers to draw Mr. Turner's conclusion that "what is heard is real, and the audible differences in the firing rates of the two guns actual and ultimate," it would be necessary that they be congenitally lacking in other respects than eyesight. Mr. Turner's footnote in this connection regarding the invariance of the velocity of light is analogous to the introduction of the Prince of Denmark as epilogue.

To proceed to the "General Theory of Relativity," it will be recalled that the transformation to a uniformly moving system made no change in the property (*e*), *i.e.*, no forces were introduced into one system that were not in the other, although the question "Uniform relatively to what?" was avoided. Newton saw the difficulty and dodged it by saying in effect, "Relatively to the fixed stars." Now if we try to express the relations between the two systems in such a manner that they are of the same form even though the systems be accelerated, we find that the forces are not invariant, and indeed depend entirely on the way in which we measure the phenomena in question. The general theory states the characteristics of a phenomenon relative to any set of quantities we may choose to measure it by, and shows that the special theory holds only in space free from the effects of gravitating matter. In the presence of gravitating matter the quantities that are invariant are still further reduced, and objective reality in the sense in which three-dimensional objects have been regarded as real becomes still more elusive. The four-dimensional manifold of space-time is not homaloidal, but "curved," and its curvature is determined by an operator called a tensor, whose value for any point is dependent upon the distribution of matter. This curvature must be regarded as having a certain objectivity. By suitably choosing our conditions of observation in any one place, we can remove it locally, as for instance we can lose weight for a few seconds in an elevator that starts to descend, but our elation is short lived, or would be should we get on a pair of scales as the elevator approaches a landing. Removing the effect in one location augments it in the remainder of the continuum.

Among the physical concepts formerly considered fundamental, the only ones that still remain invariant are the concept of "action," which is of the dimensions of energy times time, and the thermodynamic function, "entropy." From the new standpoint, qualities that we have hitherto regarded as theoretically being able to increase without limit, are definitely limited. Thus we have a maximum velocity "*c*," and a definite extent of space which may be computed as a function of the mean density of matter. There also appears to be an upper limit to the density of matter or energy. These results are due, not as Mr. Turner says in concluding "to the fundamental rôle, already alluded to, played by light and vision in normal experience," but to the discovery that there is a fundamental velocity that is invariant, and which happens to be very near the velocity of light; so near in fact that the two are quite generally regarded

as identical. My reason for stating it in this way is to emphasize the point that is *not* the fact that this velocity is that of light, but that it is *invariant* that leads to the theory of relativity.

H. A. WADMAN.

NEWPORT NEWS, VA.

AN HISTORICAL ANTICIPATION OF JOHN FISKE'S THEORY REGARDING THE VALUE OF INFANCY

JOHN FISKE is universally credited, and justly, with making an important contribution to the theory of evolution. I refer to his theory regarding the meaning and value of the prolonged period of human infancy in comparison with the briefer infancy of the lower animals. Without questioning Fiske's independence of other sources in developing his theory, I would like to call attention to an obscure essay published nearly forty years before Fiske's first book appeared, an essay in which the two points regarding the value of infancy made by Fiske are made in a strikingly parallel manner.

A few months ago Mr. George W. Robinson, Secretary of the Harvard Graduate School, showed me an old volume which he had found in a second-hand book-store; and he called my attention to an essay in it which, as he thought, was similar to writings by Fiske many years later. This volume is entitled *The Friend's Annual; or Aurora Borealis.* It consists of essays written by "Members of the Society of Friends" and was published in England in 1834. Among the essays is one covering six pages (pp. 152–57) entitled "On the Helpless State of Infancy," which is signed simply with the initials, V. F.

The purpose of V. F., writing before the acceptance of evolutionary views, was to show the "graciousness of Providence" in establishing the long period of helpless human infancy. The purpose of Fiske was to support the evolutionary theory by showing the significance of a lengthened infancy as a factor in bridging the gap between brute and man, and to account for the evolution of human intelligence and morals. Indirectly, however, Fiske was attempting to "justify the ways of God to man" by pointing out the goodness of the Power manifested in the evolutionary process, and for this reason the similarity between Fiske's theories and V. F.'s become all the more striking. According to Fiske, as is well known, a long period of infancy is valuable, first, in giving time for educative influences to work upon the plastic brain and in making

possible thereby a high development of the mind, and, second, in making necessary a greater degree of parental co-operation than is the case among the lower animals in caring for the young, who are dependent, in the case of human beings, for several years at least. Thus, according to Fiske, a long, helpless human infancy manifests its purpose in the resulting development of the domestic virtues, and in the general education of each new generation which is made possible by a long period of plasticity. The unknown author of the essay in *The Friend's Annual,* after discussing the relatively short infancy of most forms of animal life, and the lack of any high degree of parental care except in the higher forms of life, turns to man, and in the following sentences embodies the gist of both points made by Fiske:

"Thus gracious hath Providence been to man, in rendering the ties of parental and filial affection so much more permanent in this His noblest work, than in any of His inferior creatures. And this is, in itself, a sufficient answer to the objections and complaints of those ancient and modern philosophers (Pliny and Buffon), who have delighted to vilify human nature, on account of the helpless condition of man in his state of infancy and childhood; because this very helplessness, by demanding the constant and long-continued attention of parents, gives rise to, and renders habitual, the tender charities of domestic and social life" (pp. 154–55).

"This helpless condition, then, in which it hath pleased our Maker that we should be introduced in the present state, exhibits many marks of benevolent and wise design. . . . It ought to be regarded with thankfulness, as necessary to the formation of that strong and durable affection between parent and child, which is one distinguishing feature of the human race, and a mark of its superior character" (p. 157).

"But this is also a beneficial and wise appointment in another important respect. It is admirably adapted to the circumstances of man, considered as a rational and moral being, designed to be trained to usefulness in the present life, and to the cultivation of those religious and virtuous habits, by which he is to be fitted for another. It is necessary to such a being, that maturity of understanding and bodily strength should be gradually acquired, by the slow development of his corporeal and mental faculties" (p. 155).

In the writings of Fiske there are to be found ideas which are strikingly similar to portions of V. F.'s essay. For example, compare with the last part of the first paragraph quoted above from V. F. the following from Fiske (*Excursions of an Evolutionist,* p. 316): "Infancy extending over several years must have tended

gradually to strengthen the relationship of the children to the mother, and eventually to both parents, and thus gives rise to the permanent organization of the family."

It does not seem likely that the circulation of *The Friend's Annual* was wide or that a copy was ever seen by Fiske. I have been unable to find another copy than the one in Mr. Robinson's possession. The obvious similarity of thought and expression simply shows how hard it is to be wholly original in the sense of thinking and saying what no one ever thought or said before.

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THE TWENTY-FIRST ANNUAL MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION—EASTERN DIVISION

THERE are two kinds of people who attend philosophical meetings: those who go because of the papers to be presented; and those who go in spite of them. Probably by temperament, training or moral convictions most American philosophers belong consistently to one or the other of the two classes. Probably most of them, that is, are impervious alike to disillusionment and to agreeable surprise, and so continue either to regard the programme prepared by the executive committee as the Mecca of the annual pilgrimage; or to deplore it is a necessary evil—something by no means warranting the expenditure of railroad fare. But undoubtedly there is always also a small minority capable of the human grace of change of heart. A few pessimists turn optimistic; a few optimists arrive at the delayed and gloomy conclusion that philosophy in America has gone to the dogs.

If many were moved to unwonted enthusiasm over this year's oblation to the spirit of Philosophy, confirmed cynics will probably insinuate that the fact may be explained as due to the unprecedented brevity of the ceremony. After all, nobody minds even extreme twinges of boredom or of pain provided they be brief enough; and to be served with but three formal sessions, duly punctuated by unusually delightful social gatherings, might create the illusion of enjoyment merely by contrast with the prolonged boredom to which one was accustomed. Any defender of the Poughkeepsie sessions would have to admit that they were brief. But he would still maintain that they were also intrinsically interesting and important. Presumably the chief task of the present

reviewer is to indicate what there was about the twenty-first congregation of philosophers to call for special praise.

There were ten papers promised, nine given, and the first ground for favorable comment on so limited a programme was the variety of the interests represented. The list of topics dealt with in the papers themselves included: the nature of religion, the nature of the good, the nature of a physical thing, the nature of philosophy. Subjects as wide asunder as Kemp Smith's commentary on Kant and the superstitions of popular philosophy were criticized; while by one writer the concept of civilization, by another, the concept of experience was displayed for analysis. In the course of the discussion attendant upon the formal presentations, the points of view of absolute idealism, of extreme pragmatism, of moderated pragmatism, of positivism, of agnosticism, and of several degrees of realism were picturesquely exemplified. The papers would have possessed some value if they had done no more than thus demonstrate the actual range of current philosophical opinion.

What might have been supposed to rank among the less significant of the contributions proved one of the most brilliant—Professor Meiklejohn's remarks on Smith's *Commentary*. If commentaries themselves savor of the parasitic—subsisting, vulture-like upon the carcasses of other men's ideas—a commentary upon a commentary should be but the parasite of a parasite. But, at least in the case of Professor Meiklejohn's acute and epigrammatic criticism, the double negative took on the character of a genuine positive. The paper was important not as an elicitor of wide and varied discussion—it was replied to merely by Professor Cohen—but as a little gem of analysis and exposition. Esthetically, it had the effect of a philosophical lyric, if one will grant the substitution of logical for poetical poignancy, and dialectial cohesion for a merely emotional unity. By deft manipulation of Kemp Smith's premises, Professor Meiklejohn demonstrated that Smith's attempted annihilation of Kant came to naught, reducing to the protest that Kant didn't mean what he said he meant. He denounced in particular as highly questionable Smith's method of arbitrarily selecting out of a paragraph one set of Kantian propositions, forcibly taken out of context, and rejecting as improper intrusions of a different date another set actually interwoven with the first.

Another paper which fell into the midst of relative silence was that of Professor Cohen on *Myth and Science in Popular Philosophy*. One part of the audience agreed so profoundly with Professor Cohen's contentions that they found nothing to say in the way

of criticism or qualification. Another part experienced such thorough disapproval of the spirit and ultimate implications of what he expressed that nothing short of a pitched battle would have promised satisfaction. It was not a mere sense of the present incompleteness and unwarranted dogmatism of science that Professor Cohen gave voice to. The spirit of his polemic was cynical—as if he felt actual glee in the weaknesses and deficiencies he discovered—and the intention of it seemed to be to throw in question as all equally childish and superstitious the best-grounded hypotheses of modern thought. It was as they concerned the concept of evolution that his comments were perhaps especially to be deplored.

They were to be deplored chiefly for the improper use to which they might be put, all the more dangerous by reason of his own great learning and ingenuity. He was directing his attacks against *all* undue certitude, *all* forms of superstition, and it is certainly not to be supposed that he intended for a moment to lend support to anything like the Mosaic account of creation as an alternative to the Darwinian. And yet there can be no doubt that the popular effect of any somewhat ambiguous criticism of the doctrine of natural selection is always the lamentable one of reinforcing doubt of science from the standpoint of religion. With fanatics in the state of Kentucky bent on controlling biological instruction out of consideration for church dogmas, and with certain otherwise admirable New York papers giving voice to the bigotry of those for whom the theory of organic evolution is an *a priori* impossibility, scientific doubts need to be couched carefully if they would not mislead. As an example of wise caution, the procedure of Professor Bateson in his address on *Evolutionary Faith and Modern Doubts* before the American Association for the Advancement of Science at its December Meeting in Toronto may be cited. He said at the close of his paper: "I have put before you frankly the considerations which have made us agnostic as to the actual mode and processes of evolution. When such confessions are made the enemies of science see their chance. . . . Let us then proclaim in precise and unmistakable language that our faith in evolution is unshaken. Every available line of argument converges on this inevitable conclusion. The obscurantist has nothing to suggest which is worth a moment's attention." Any one in the ranks of science or philosophy failing to make such specific confession of positive faith should take heed lest he be unwittingly counted among the obscurantists rather than as merely an exponent of an esoteric type of skepticism.

The only other paper of the afternoon session with Professor Cohen was that of Professor Montague entitled *The Missing Link in the Case for Utilitarianism.* As always when problems of ethics are introduced, the discussion that followed was fast and furious. The theory put forward was that, whereas Mill rightly felt that there are different kinds of happiness, some being incommensurably superior to others, he need not have abandoned the utilitarian principle that happiness is the sole measure of good, if he had recognized dimensionalities of happiness. This concept of dimensionality, so Professor Montague contended, while doing full justice to the fact that no number of pig contentments could equal a Socratic contentment, still makes possible the avoidance of any other quality than happiness in the hierarchy of goods. The difference, then, between a simple pleasure and virtue would still remain quantitative, one being a good, the other a permanent ground for unlimited further goods. The discussion was participated in by Professors Cohen, Brown, Bakewell, Pratt, Fullerton, and others. Some acute criticisms were offered by Professor Fullerton in particular, and Professors Cohen and Pratt suggested analogies for the elucidation of Professor Montague's theory. It can not, however, be said that the case for utilitarianism was finally settled, one way or the other.

In two other papers at the close of the sessions on the following day the problem of the good was reopened, first by Dr. Stephen Pepper under the title: *Primitive and Standard Value,* and then by Dr. C. E. Ayres in exposition of the theme: *Before Good and Evil: Civilization.* Again there was animated argument, particularly with regard to the point of view apparently shared by the two speakers, that standards of good and evil are quite empirical affairs, the product of group habit and ultimately the outcome of instinctive behavior. Mr. Ayres, in particular, appeared to think that a kind of majority vote was the final criterion of the good. Professors Pratt, Montague and others attacked the notion that standards are devoid of objective validity, as Mr. Pepper had contended, and Professor Overstreet, in a brief but very eloquent speech, set forth what is probably the most defensible view in the whole matter: that the good is not an absolute in the sense in which possibly mathematical truth is, but is relative to consciousness, without, however, being entirely individual and variable. The good, that is, is to be defined by reference to the ideal maximum development of human valuation.

There remain to be considered the first four papers on the programme: that by Professor French on *The Metaphysical Value of*

the Religious Consciousness; that by Professor W. K. Wright on *Situations and Experience;* that by Professor Sellars, entitled *Does a Physical Thing Possess Attributes?* and finally Professor Creighton's paper on the *Form of Philosophical Intelligibility.* This last took us back to the chief topic of the previous annual conference which was mainly concerned with the problem of the nature and function of philosophy. Professor Creighton defended the idealistic standpoint that things can be truly known only in relation to the whole, and that the significant inquiry is as to values rather than existences. He noted the two important points of difference between science and philosophy resulting from these two doctrines, and insisted that it is only by the coöperation of imagination with reason that philosophic knowledge—knowledge of the concrete universal—is made possible.

It was in connection with the discussion of Professor French's paper, however, that the implications of absolute idealism were brought out with most startling clearness by Professor Creighton. Professor French had stated that the essential core of the religious consciousness was the faith that the ideal is real. This had elicited from Professor Montague a violent protest against the confusion of religion and ethics, and an affirmation of the essentially unethical consequence of any religious doctrine to the effect that "all's right with the world." To which Professor Creighton responded that the ethicist was being confused with the reformer—an individual to be tabooed by the truly ethical and religious. Essentially unethical in his opinion is not the regarding of the world as perfect, but rather the regarding of it as anything else—and the consequent striving to make it other than we find it.

This position is of course the traditional one for believers in the absolute, and there was nothing really novel in the defense of it nor yet in the defense of its opposite. What was picturesque and really valuable was the clear-cut presentation of the irreconcilable viewpoints as summed up in the protest and counter-protest from the floor. We are so pervasively occupied in elaborating the minor aspects of our respective philosophies, that it is wholesome and refreshing now and then to see their crucial dogmas baldly exhibited. There was no resolution of the two viewpoints—as there can not be; but at least no ambiguity was left as to the utter opposition between them.

Professor Wright dragged into the arena for reconsideration the pragmatist coupling of situations and experience. Though at first hotly defending an orthodox pragmatic view he finally, under the goad of questioning, expressed a tentatively agnostic attitude

which would be quite unobjectionable to many outside the pragmatic persuasion. A genuinely objective world of values, truths and relations was practically admitted by him as logically implied by the very doctrine of pragmatism itself.

To his own query as to whether physical things possess attributes, Professor Sellars, disclaiming the possible imputation that he spoke for all critical realists, replied in the negative. A lively debate between him and speakers from the floor followed his presentation of the view that what might be called structure—identical, apparently, with space-time predicates—constitutes a so-called physical thing as it is in itself. Professor Fullerton pressed his question as to why any one should be more sure of the objective reality of primary qualities than of secondary; and others variously defended, on the one hand, a more radically realistic view than that promoted by Professor Sellars, and on the other, a more agnostic or subjective. The consensus of opinion seemed to be that mere "structural" entities such as Professor Sellars defended as the stuff of the objective universe, were as highly questionable things as Berkeley had found "substance" to be.

Of the brilliant presidential address by Professor Sheldon entitled *Soul and Matter* there was, of course, no discussion. If there had been opportunity, rather lively debate might have been anticipated. For Professor Sheldon, after a telling enumeration of the kind of considerations which lead to dissatisfaction with traditional materialism, proceeded to defend a doctrine of souls, but souls interpreted after an unusual manner. It was a creed of soul-substance that we were offered; not, however, a soul-substance divisable and capable of taking on varying configurations. The soul, according to Professor Sheldon, must be regarded as possessing at once all the attributes it would possess as a material thing and as a psychical—in other words, it is a psychic substance, a kind of monad, an ultimate, indivisible, spiritual unit which is yet a genuine substance and in no wise a mere form or force.

The annual dinner which preceded the President's address took place in Main Hall of Vassar College where all meals were served to members of the Association, and where likewise the reception given by President and Mrs. McCracken was held on the first evening. Very much was gained in the way of comfort and informality by having the association housed in one building, with only a few steps to take to Rockefeller Hall where the formal meetings took place. There was consequently ample opportunity for that intimate interchange of ideas which to many affords more pleasure and profit than does any amount of public discussion. Probably

few if any permanent conversions from one philosophic allegiance to another ever occur in this way, but at least sometimes there takes place an enlargement of vision in which the splendid range and variety of possible viewpoints becomes manifest. Effort after sympathetic envisagement of theories opposed to one's own then ceases to be distasteful, since truth is seen to be something far less simple and easy than an affirmation of one creed or its bare contradiction. Perhaps this recognition of a reality so rich that it generates a multiplicity of doctrines is more than anything else the goal of philosophic convocation.

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BOOK REVIEWS

The Principles of Sociology. EDWARD ALSWORTH ROSS. New York: The Century Company. 1920. Pp. xviii + 708.

In a letter published by Professor Ross as a foreword to his *Sin and Society* in 1907, Theodore Roosevelt said: "It is to Justice Holmes that I owed the pleasure and profit of reading your book on Social Control. The Justice spoke of it to me as one of the strongest and most striking presentations of the subject he had ever seen." A writer to whom Justice Holmes and Theodore Roosevelt, not to mention a host of others, acknowledge their debt may justly lay claim to being a power in the intellectual life of America. By all that large public, therefore, who have known Professor Ross through his *Social Control, Social Psychology, Sin and Society, Changing America,* not to mention his *Changing Chinese* and *South of Panama,* this, his latest and most ambitious work, will be gratefully received.

The *Principles of Sociology* is a bulky volume of over seven hundred pages and is evidently intended to be the author's magnum opus. We are told that he was seventeen years in gathering the material through a first-hand study of conditions in China, Russia, South America and the United States while three and one half years were occupied with the actual writing of the book. The book shows those qualities that made for the success of Professor Ross's earlier works, namely, marvellous *Belesenheit,* a wealth of interesting illustrative material amassed by a keen and far-traveled observer, a zeal for facts combined with a phobia for the philosophical and a style which in journalistic vividness hardly attains the level of earlier works such as *Sin and Society.*

William James, in a striking characterization of Herbert Spencer's philosophy, calls "his whole system wooden, as if knocked together out of cracked hemlock boards—and yet the half of England wants to bury him in Westminster Abbey. Why?" Because "the noise of facts resounds through all his chapters" (*Pragmatism*, p. 39f.). Ross like Spencer is factually minded. He is most skilful, in selecting striking, interesting and apposite illustrations. If bare, brutal, unvarnished facts could settle all moot questions Professor Ross would be the most convincing of writers, for he is primarily an eager, earnest, indefatigable and for the most part unprejudiced chronicler of social facts as he sees them. He makes small demand upon either the history of thought or the implications of social evolution for the interpretation of these facts. Groups, social forces, class conflicts, social processes are studied as they present themselves in contemporary society. Professor Ross's "system of sociology," in so far as it can be traced, is composed of generalizations deduced from present-day and for the most part American society. Facts are drawn from the treasure house of the past mainly to illustrate and support this pragmatic interpretation of the present. The result is that Professor Ross is forced to adopt in many instances shorthanded not to say dogmatic solutions of moot questions. The absence of any comprehensive principle of interpretation likewise places the writer more or less at the mercy of the welter of factual details. This appears in the tendency to multiply social principles and processes. Part three, which contains two thirds of the book, enumerates some thirty-odd distinct social processes which are discussed in as many chapters.

The book seeks to be comprehensive. Professor Ross tells us that his work contains "a system of sociology" where "system" is used in the philosophical sense of "a way of making some aspect of reality intelligible." The book acquires an ethical flavor when the writer avows "an over-mastering purpose and that is—to better human relations." We detect the note of the social reformer when it is claimed that the book is "intended to help people to arrive at wise decisions as to social policies." The main object of the author however is undoubtedly to present a scientific account of the facts of society. Now all these phases of sociology are important and naturally enlist the interest of students. But from the point of view of methodology the uncritical intermingling of them in a treatise on sociology can hardly further the scientific phase of the subject. In any young and growing science such as sociology it is easy to pass from the rôle of scientist to that of moralist or of social reformer but the effect is confusing. There is possibly a place for

a comprehensive work on sociology that would give us a *synthesis* rather than a *fusion* of these points of view. It is conceivable that a part of such a work could be devoted to the critical and scientific presentation of the facts, another to the theoretical interpretation of these facts either from the metaphysical or the ethical point of view, and still another to suggestions for the social reformer as to the effective combination of fact and ideal in programmes for social betterment. But it is difficult to see how sociology is ever to become a science without keeping clearly in mind the differences between these phases of the subject.

Professor Ross's comprehensive and suggestive book is a *fusion* rather than a *synthesis* of social fact, social theory and social reform. The result is that strict justice is hardly done in the book to either one of these phases of the subject. Let us consider for a moment Ross's place in and his contribution to social theory. This book is the culmination of years of study, embodying the mature conclusions of a scholar of encyclopedic learning and wide experience, yet it adds little or nothing to the theory of society though claiming to be "a system of sociology." There are to be sure abundant evidences that Professor Ross has in the background of his thought, though implicit and fragmentary, the makings of a philosophy of society. But this "system" contains little not found in his contemporaries or predecessors. For Ross, together with the majority of American sociologists, leans towards a voluntaristic conception of society as opposed to the intellectualism of Comte and the biological materialism of Spencer. To be sure earlier writers such as Ward and Giddings were profoundly influenced by Spencer but drew away from him towards a more voluntaristic point of view. Ward, who was the dean of American sociologists, broke with Spencer when he insisted that the state, which to Spencer was anathema, is the brain of society and conceived of sociology as the science dealing primarily with the evolution of the social will. For Giddings society is not, as Spencer asserted, an organism but an organization of a number of individuals who by virtue of their "like-mindedness" embody a common will. But neither Ward nor Giddings quite emancipated themselves from Spencer's influence. Ward, who brought to sociology the training and mental attitude of the paleobotanist, found "almost as many parallels between social and chemical processes as there are between sociology and biology" (*Pure Sociology,* p. 71), while Giddings was wedded to the materialistic monism of Spencer. "All social energy" he tells us, "is transmuted physical energy . . . the original causes of social evolution are the processes of physical equilibration which are seen in the integration of matter and the dissipation of motion"

(Giddings, *Principles of Sociology,* pp. 363f.). A decided impetus towards a more psychological and voluntaristic conception of society was given by Professor Small with his doctrine of interests suggested by Ratzenhofer. To resolve all social forces back into interests, as does Small, to find in interests the clue to social evolution and the key to social problems is to plant sociology firmly upon a psychological and voluntaristic basis. Civilization thus becomes synonymous with socialization, culture a matter of the disciplining of elementary human nature rather than of the conquest of natural forces. Out of these basic "interests" arise the social ends that condition society and social progress becomes a matter of the criticism, the evaluation and the realization of these ends. It is thus a distinct contribution on the part of Professor Small to have introduced the idea of value into sociology and in particular to have stressed the intimate connection between sociology and ethics. Small's contribution suffers however from the vagueness inseparable from the idea of interest, a term too broad, too many-sided and too unscientific to provide a satisfactory basis for the science of sociology, a fact which Small seems to recognize in his later work *The Meaning of Social Science,* where interest is no longer emphasized.

Professor Ross, with his facile pen, his large reading public and his wide learning, is admirably equipped to give final formulation to the drift of sociological thought in this country. He is evidently in sympathy with these voluntaristic and psychological tendencies in American Sociology. "The immediate causes of social phenomena," he says, "are to be sought in human minds . . . nothing is gained by viewing them as a manifestation of cosmic energy" (p. 41). Following McDougall, he finds that the instincts "are the mental forces which maintain and shape all the life of individuals and of societies" (p. 42). The instincts or "original social forces" give rise to "derivative social forces" or "interests." We look in vain in the work however for an elaboration of these suggestions into anything bearing a resemblance to a philosophy of society, nor do we find such a system in Ross's other works. In the discussion of the genesis of society (ch. ix), for example, we would expect some attempt to point out the relation of the social forces of instinct and interest to the differentiation of the social process into groups. (Professor Ellwood has done this in suggestive fashion in his *Sociology in its Psychologcal Aspects,* Ch. VII, "The Origin of Society"). This Ross does not attempt and thus leaves us without any adequate explanation of the why or the how of the vast proliferations that have characterized the social process from its very inception. Owing to

this distrust of the speculative and theoretical and in spite of the imposing array of terms and principles to describe social phenomena the book often gives the impression that we are still dealing with the impulses, contacts and interests of individuals. The writer fails to impress upon the reader that there is a social as opposed to an individual reality, as is done so skilfully in the works of Cooley. Even in the last part, devoted to "sociological principles," these principles are merely generalizations drawn from the facts. There is little attempt to relate these principles to each other or to a general voluntaristic point of view. The discussion of "Anticipation" (ch. 44), for example, a characterization of the growing purposefulness of society, is obviously related to the teleological implications of the basic social forces of instinct and interest and yet no attempt is made to indicate this relation. The last principle of "Balance" (ch. 47), defined as follows: "In the guidance of society each social element should share according to the intelligence and public spirit of its members *and none should dominate*" (p. 693), is a meaningless truism without further light as to our ideal of what society should be. This unwillingness to think things through even at the risk of landing in philosophy makes the book often tedious reading in spite of its wealth of concrete and piquant details.

Ross's *Principles of Sociology* will hardly take its place as a permanent contribution to social theory, it will hardly be in demand as a compendium of social facts scientifically arranged nor yet as a handbook for the reformer, though philosopher, scientist and reformer may find here both information and inspiration. The book will be prized for its wealth of information, its suggestive insights into phases of social reality and its vivid style. It is a question, however, whether Professor Ross's fame will not be furthered less by this bulky volume than by his earlier more incisive if less ambitious writings such as *Social Control, Sin and Society* and *Changing America*. It may be that his most lasting contribution will not be as a social philosopher but rather as the brilliant analyst of a changing world order and the fearless castigator of our modern high-power sinners.

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General Principle of Relativity: H. W. CARR. London: Macmillan & Co. 1920.

Space and Time in Contemporary Physics: MORITZ SCHLICK. Translated by H. L. Brose. Oxford University Press. 1920.

On Gravitation and Relativity: R. A. SAMPSON. (The Halley Lecture.) Oxford University Press. 1920.

Carr states in his preface that he deals only with the philosophical and historical aspects of the principle of relativity (the main ideas were developed in a course of lectures on "Historical Theories of Space, Time and Movement," delivered at King's College in the spring of 1920); but in fact, as one reads the book, one finds that a large proportion of it is actually devoted to an exposition, of course in popular language, of the mathematical and physical aspects of the Einstein theory, mainly the special theory of relativity.

This exposition is well written, but it will hardly make the theory clear to a reader who is not already familiar with it; and a number of actual misstatements can be pointed out. On page 35 it is stated that "in an infinite series no two members are next one another, for between any two there is always another." This is stated as a general proposition and of course is not true; some infinite sets have next members like the series of integers. Others do not enjoy this property like the continuum of points of a line.

On page 138 the author is evidently confused by the concept of *event,* since he talks about an infinite set of events as if it were a single event, which is just as bad as not differentiating between a single point and a curve.

The statement on page 77 dealing with the Einstein principle of *equivalence* refers merely to the trivial fact that when A moves toward B, B may be regarded as moving toward A; the true principle in fact has nothing to do with the special theory of relativity but deals with the connection between gravitation fields and acceleration fields.

The best part of the book is the historical accounts of "Atoms and the Voids" in Chapter 3 and of the "Vortex Theory" in Chapter 4, precisely the parts that have least to do with Einstein.

The general theory of relativity which is at the basis of Einstein's solution of the problem of gravitation is hardly touched on by the author—in spite of the title of the book. The concepts of curvilinear coördinates, curvature, and tensor, can not be grasped without a good deal of serious mathematical thinking, and without them it is impossible to understand the Einstein theory.

The last chapter of Carr is entitled "In What Sense is the Universe Infinite?" It does not make clear the fundamental fact that we must distinguish between the infinity of space and the unboundedness of space. This essential point is very well presented in the ninth chapter of Schlick's book (a chapter added to the second edition). Another fine chapter of Schlick's deals with the "Inseparability of Geometry and Physics in Experience." On page 73, however, the

reader is left entirely in the dark as to the distinction between spherical and elliptical spaces. If the reader relys on etymology or what he has picked up in elementary college mathematics, he is bound to have an entirely false impression of the true state of affairs and Schlick's discussion will not help him out of his difficulty. Schlick goes much further than Carr in both mathematics and physics, but neither goes far enough to reach a clear statement of Einstein's law of gravitation.

Sampson's brief lecture is more interesting for its classical quotations and sarcastic point of view than for the light it throws on Einstein.

For the philosopher who wishes to get in closer contact with relativity, the reviewer would recommend Einstein's popular book, Eddington's *Space, Time and Gravitation,* and Born's *Relativitätstheorie Einsteins.* For the mathematical reader, who wishes to reach the fundamentals, there is no rival to Weyl's *Raum, Zeit, Materie,* which has not yet been translated into English. (Weyl and Eddington have now been translated into French, with valuable additional material.) The most interesting exposition of Einstein written by a philosopher, is that contained in Viscount Haldane's new book, *The Reign of Relativity,* his attitude toward mathematics being finely expressed as follows:

"What I have ventured to say must be taken as pretending to record no more than it does, the impressions of a non-mathematician about what the mathematicians are saying to each other when they enter the borderland of philosophy and speak about it among themselves. The impression is that of a stranger in whose presence they talk, but who, although keenly interested in learning from them, is but imperfectly acquainted with a language which to them is one of second nature. They may, therefore, be gentle with him if his accent seems strange and his capacity to do justice to their words appears inadequate. His reason for listening and in his turn making comments does not appear to be an irrelevant one. They are in a territory that is occupied in common, and forbearance on both sides is therefore necessary. I do not believe that the fundamental conceptions are as obscure as some of the mathematicians take them to be. The reason they seem so is that they are concerned with matters which involve consideration of a more than merely mathematical character. For the rest I am not lacking in admiration for the splendid power of the instruments the mathematicians possess, and the wonderful results they have achieved with them; instruments which impress me not the less because it is beyond my powers to wield them."

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COLUMBIA UNIVERSITY.

JOURNALS AND NEW BOOKS

THE AMERICAN JOURNAL OF PSYCHOLOGY. October, 1921. *The Stimulus Error* (pp. 449–471): EDWIN G. BORING.–Recent researches have shown that the observational attitude toward the stimulus may lead to equivocal correlations of stimulus and response that are unscientific. In the two-point limen experiments the use of introspective data is advocated. *The Illusory Perception of Movement on the Skin* (pp. 472–489): ANNA KEELMAN WHITCHURCH.–The perception of cutaneous movement was obtained by the successive stimulation of two separate points with optimum results for durations of 150 sigma and an interval of 100 sigma. *Some Qualitative Aspects of Bitonal Complexes* (pp. 490–518): CARROLL C. PRATT.–After a defining of smooth, simple, complex, homi-sonorousness and other terms used in describing bitonal presentations, agreement was noted in the reports on the octave, fifth, fourth, tritone, sevenths and seconds, while there was much divergence for the thirds and sixths. *On Arterial Expansion* (pp. 516–518): G. N. HARTMAN AND D. L. MCDONOUGH.–The combination of the sphygmomanometer with the plethysmograph appears to give a better determination of arterial elasticity than does the present medical clinical method. *Functional Psychology and Psychology of Act* (pp. 518–542): E. B. TITCHENER.–Functional Psychology has its roots in the Aristotelian empiricism and has taken on color from many of the related sciences without adopting the modern conception of science. *Church History and Psychology of Religion* (pp. 543–551): PIERCE BUTLER.–Modern psychology, if it were more descriptive, could be of great service to religious history. The religious genius, his disciples, and the adherents to the system, all need psychological study. *Death-Psychology of Historical Personages* (pp. 552–556): ARTHUR MACDONALD.–The fear of death disappears as death comes on. 794 death-bed experiences are tabulated and described. *Minor Studies from the Psychological Laboratory of Yale University. An Experiment in Time Estimation Using Different Interpolations* (pp. 556–562): LLEWELLYN T SPENCER.–Reproduction gives more accurate results than a statement in terms of standard unit. *Minor Studies from the Psychological Laboratory of Cornell University. The Involuntary Response to Pleasantness* (pp. 563–570): G. H. CORWIN.–Pleasant stimuli produce relaxation with a certain degree of expansion and pursuit on their withdrawal when intensely pleasant. *The Integration of Punctiform Warmth and Pain* (pp. 571–574): R. S. MALMUD.–Warmth and pressure may fuse but this fusion never gives the impression of wetness. *Book Reviews* (pp. 575–587): Wilhelm

Weindt, *Erlebtes und Erkanntes.* E. B. T. *L'anné psychologique:* H. P. W. Margarete Hamburger, *Vom Organismus der Sprache und von der Sprache des Dichters. Zur Systematik der Sprachprobleme:* J. GLEASON. O. Lipman, *Abzühlende Methoden und ihre Verwendung in der psychologischen Statistik:* L. B. HOISINGTON. Frank Tannenbaum, *The Labor Movement:* H. G. BISHOP. Carveth Read, *The Origin of Man:* W. B. PILLSBURY. Charles Pratt, *The Psychology of Thought and Feeling:* W .B. PILLSBURY. *Psychological Periodicals.* Brief reviews of the following are presented: *Zeitschrift für Psychologie,* Bd. xxxiv–lxxxvii. *Archiv für die gesammte Psychologie,* Bd. xxxix–xl. *Psychological Review,* Vol. xxvii, Nos. 1–6, Vol. xxviii, No. 1. Notes. *On the Plan of the Physiologische Psychologie:* E. B. T. *Experimental Psychology in Italy:* E. B. T. *The Psychophysiology of the Condemned:* E. B. T. *Locomotion of Insects:* E. C. S. *George Trumball Ladd:* E. B. T. *Index.*

Keyser, Cassius J. Mathematical Philosophy: A Study of Fate and Freedom. Lectures for Educated Laymen. New York: E. P. Dutton & Co. 1922. Pp. 466.

NOTES AND NEWS

The first volume of a series of translations and reprints, to be known as *Psychology Classics,* will shortly appear. The series is to be edited by Knight Dunlap, and published by the Williams & Wilkins Company in Baltimore. The first volume, which is now in press, contains a translation, by Miss Istar A. Haupt, of Lange's monograph on *The Emotions,* with reprintings of James's article "What is an Emotion?" from *Mind,* and his chapter on "The Emotions" from the *Principles of Psychology.* In order to facilitate the preparation of future translations and reprints, the royalties from these volumes, together with an equal amount contributed by the Williams & Wilkins Company, will be deposited with the Treasurer of the Johns Hopkins University, the fund so constituted to be used solely for the defraying of clerical and other necessary expenses of such preparation. The editor requests suggestions concerning future volumes, and coöperation in their production.

Professor William Ernest Hocking, Alford professor of natural religion, moral philosophy and civil polity, and Professor Alfred Marston Tozzer, professor of anthropology, have been appointed the professors from Harvard University for the second half of the year 1922–23 under the exchange agreement between Harvard and the Western Colleges.

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On the Method of Metaphysics. CHARLES H. TOLL.
Critical Realism. B. H. BODE.
Book Reviews. Journals and New Books. Notes and News.

Volume XIX. No. 4. February 16, 1922

The Identity of Instinct and Habit. KNIGHT DUNLAP.
Must We Give up Instincts in Psychology. J. R. GEIGER.
The Modification of Instinct. WALTER S. HUNTER.
Book Reviews. Journals and New Books. Notes and News.

Volume XIX. No. 5. March 2, 1922

A Suggestion Regarding Esthetics. STEPHEN C. PEPPER.
Esthetic Values and Their Interpretation. WENDELL T. BUSH.
Immediate Inference and the Distribution of Terms. ALBERT L. HAMMOND.
Book Reviews. Journals and New Books. Notes and News.

Volume XIX. No. 6. March 16, 1922

Democracy and Morals. G. A. TAWNEY and E. L. TALBERT.
Dr. A. N. Whitehead's Scientific Realism. J. E. TURNER.
A Behavioristic Account of the Significant Symbol. GEORGE H. MEAD.
Book Reviews. Journals and New Books. Notes and News.

Volume XIX. No. 7. March 30, 1922

The Metaphysical Status of Sensations. STERLING P. LAMPRECHT.
Truth as Correspondence : A Redefinition. JAMES L. MURSELL.
The Complex Dilemma : A Rejoinder. THEODORE DE LAGUNA.
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Published without fixed dates, each issue one or more researches.

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An annual bibliography of psychological literature.

Journal of Philosophy—New York; Sub-Station 84.
Subscription $4. 728 pages per volume. Founded 1904.
Bi-weekly. Edited by F. J. E. Woodbridge and Wendell T. Bush.

Archives of Psychology—Sub-Station 84, N. Y.; Archives of Psychology.
Subscription $5. 600 pp. ann. Founded 1906. Ed. by R. S. Woodworth.
Published without fixed dates, each number a single experimental study.

Journal of Abnormal Psychology and Social Psychology—Boston;
Subscription $5. Richard G. Badger. Edited by Morton Prince.
Bi-monthly. 480 pages annually. Founded 1906. Abnormal and social.

Psychological Clinic—Philadelphia; Psychological Clinic Press.
Subscription $2.50. 288 pages. Ed. by Lightner Witmer. Founded 1907.
Without fixed dates (9 numbers). Orthogenics, psychology, hygiene.

Training School Bulletin—Vineland, N. J.; The Training School.
Subscription $1. 160 pages ann. Ed. by E. R. Johnstone. Founded 1904.
Monthly (10 numbers). Psychology and training of defectives.

Journal of Educational Psychology—Baltimore; Warwick & York.
Subscription $4. 540 pages annually. Founded 1910.
Monthly (9 numbers). Managing Editor, J. Carleton Bell.
(Educational Psychology Monographs. Edited by Guy M. Whipple.
Published separately at varying prices. Same publishers.)

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Subscription $5. 500 pages per volume. Edited by W. S. Hunter.
Published without fixed dates, each number a single research.

Psychoanalytic Review—Washington, D. C.; 3617 10th St., N. W.
Subscription $6. 500 pages annually. Psychoanalysis.
Quarterly. Founded 1913. Ed. by W. A. White and S. E. Jelliffe.

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